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## PATENT COOPERATION TREATY

PCT/EP2003/013529



Translation

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002/CV044	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/013529	International filing date (day/month/year) 02 December 2003 (02.12.2003)	Priority date (day/month/year) 16 December 2002 (16.12.2002)
International Patent Classification (IPC) or national classification and IPC C08G 73/18		
Applicant PEMEAS GmbH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 16 July 2004 (16.07.2004)	Date of completion of this report 06 April 2005 (06.04.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/013529

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages \_\_\_\_\_ 1-19 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages \_\_\_\_\_ 1-22 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	2-11, 18-22	YES
	Claims	1, 12-17	NO
Inventive step (IS)	Claims		YES
	Claims	1-22	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

### 2. Citations and explanations

#### Prior art citations:

D1: GB-A-1422177  
D2: EP-A-0476560  
D3: US-A-4154919  
D4: DE-A-10052237  
D5: US-A-4535144

#### Novelty (PCT Article 33(2))

D1 (example 1) describes a polyazole with an inherent viscosity of 4.5 in sulphuric acid. D2 (page 10, lines 36-37; example 6) discloses a polyazole with an inherent viscosity in sulphuric acid of 1.6 dl/g. D3 (example 4) describes a polybenzimidazole with an inherent viscosity of 1.8 in sulphuric acid.

The viscosities disclosed in D1 to D3 can be converted into intrinsic viscosities by multiplication with the factor 1.0585, in accordance with D5 (column 8, line 36). The values thus obtained are all within the claimed range, that is to say greater than 1.3 dl/g. It is pointed out in this regard that said intrinsic viscosity is a

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material-specific, and hence concentration-independent, parameter and that, in consequence, the fact that the intrinsic viscosities in D1 to D3 were determined in higher concentrations than in the present application does not influence the viscosity values obtained. Furthermore, the applicant is advised that claim 1 is a product claim defined by a process and that, for the purpose of assessing novelty, the only definitive criterion is whether or not the product disclosed in the prior art has the features according to said claim, namely in the present instance the claimed intrinsic viscosity. As stated above, the answer in this case has to be in the affirmative. In consequence, the subject matter of independent claims 1, 12 and 13 lacks novelty over D1 to D3.

Moreover, documents D1 (claim 12) and D3 (claim 5) disclose the use of the polyazoles described therein as films or fibres. In consequence, the subject matter of independent claims 14 to 17 likewise lacks novelty over D1 and D2.

D4 (page 5, lines 4-18) discloses stable solutions of polyazoles, produced from polyazole powders, wherein the size of 90 wt.% of the particles is preferably less than 1000 micrometers, being preferably less than 700 micrometers and, in particular, preferably less than 400 micrometers. In the powders used in the examples, the size of 90 wt.% of the particles is less than 300 micrometers.

D4 does not disclose the claimed steps (B) and (D) (heat treatment prior to and following pulverisation).

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Moreover, D4 also does not disclose the separation of the fraction of particles with a diameter of less than 300 micrometers, which separation, on the basis of the experimental data in the application (see the application, table I), is responsible for the claimed intrinsic viscosity being attained. In other words, the subject matter of the claims differs from D4 by virtue of the intrinsic viscosity of the polyazoles. Therefore, all the claims can be considered to be novel over D4.

**Inventive step (PCT Article 33(3))**

It is not clear what problem is solved by the subject matter of the remaining claims relative to documents D1 to D3. In consequence, the subject matter of said claims does not involve an inventive step relative to these documents.